ECE 2305

Introduction to C Programming

Programming Project 10

Object-oriented Programming

Program Features: Object-oriented Programming, Class Declarations, Constructor

Functions, Accessor Functions.

Write a C++ program that creates a class of objects called complex. Use these objects

to represent complex numbers. The two Data Members of the class shall be the real part

and the imaginary part of the complex number.

The Member Functions of the class shall include:

A default constructor

A constructor that accepts the real part and the imaginary part as parameters

A function that sets the value of the real part

A function that sets the value of the imaginary part

A function that returns the magnitude of the complex number

A function that returns the angle (in degrees) of the complex number

A function that returns the complex conjugate of the complex number

A function that displays the number in the form “real + j imaginary”

A function that displays the number in the form “magnitude at angle degrees”

Overload the following mathematical operators to accept complex objects as operands:

+ Complex Number Addition

– Complex Number Subtraction

\* Complex Number Multiplication

/ Complex Number Division

Write a main function that demonstrates all of the capabilities of the class definition.

Document the project with the following:

A. A written description of the program.

This program takes the real and imaginary parts of complex number and displays

the rectangular form, polar form, and does different functions such as addition and

multiplication on them. It uses class definitions and functions to do so.

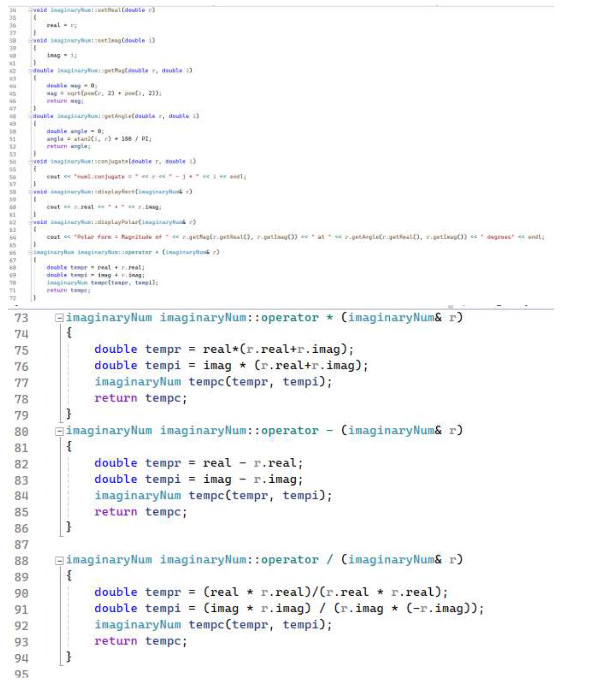
B. A diagram to graphically illustrate the structure of the program.

A diagram of a program

Description automatically generated with medium confidence

A screenshot of a computer program

Description automatically generated



A screenshot of a computer program

Description automatically generated

A screenshot of a computer code

Description automatically generated

A computer code with many text

Description automatically generated with medium confidence

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